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At the very beginning of life, inherited mechanisms are set going by appropriate situations. The reaction complex is instinctive. But immediately, if the organism possesses a cortical mechanism, profiting by reaction commences and each new performance, each new response to a given situation, in some measure modifies the creature, and by adding to its sum of experience, renders it more intelligent. Professor Morgan does not seriously discuss the question of whether intelligence or experience may exist in organisms which do not possess a cerebral cortex.

The author's conception of the relation between instinct and emotion is thus stated: "When a specific situation affords an appropriate constellation of stimuli, there issue reflexly from the subcortical centers two sets of efferent impulses, (1) those which evoke a specific mode of instinctive behavior, including those motor responses which constitute much of the so-called emotional expression; (2) those which evoke visceral disturbance—changes of heart-beat, and of the respiratory rhythm, modifications of the digestive and glandular functions, alterations in the peripheral vascular flow, a diffused influence on the general *cœnæsthesia* and so forth. From all this complex of bodily changes under (1) and (2) afferent impulses come into the central nervous system, and, when they reach the cortex, qualify the experience of the presented situation and thus complete the instinctive experience with its accompanying emotional tone. I regard it as probable that, in its primary genesis, the emotional tone is in large measure correlated with the cortical disturbance due to stimulation which is visceral and *cœnæsthetic* in origin" (p. 112).

In the final chapters of the book, VII., *The Philosophy of Instinct*, and VIII., *Finalism and Mechanism: Body and Mind*, Professor Morgan offers a critique of the views of Mr. Bergson, together with comments on those of Messrs. Myers, McDougall and Driesch.

The book is clearly and persuasively written and will undoubtedly prove agreeably profitable to readers who approach it as a general

philosophical discussion of the subject, rather than as a contribution to the science of behavior. The reviewer's sole objection to the discussion is that it meets no urgent need.

R. M. YERKES

Glycosuria and Allied Conditions. By P. J. CAMMIDGE, M.D.

The increase which has occurred within the past decade or so in the number of cases of glycosuria—an increase which is only in part due to refinements of diagnosis—is demanding the attention of a large number of investigators as to the causes which give rise to this condition.

Although the milder degrees of glycosuria are not associated with the other well-known symptoms of diabetes, yet the latter are liable gradually to develop unless great care and judgment be used in controlling the diet of the patient. To do this efficiently the physician must familiarize himself with the more strictly scientific work bearing on the history of carbohydrates in the animal body, and it comes to be of importance that for this purpose he should be able to procure reliable and up-to-date reviews of the work that has been done.

In the present volume, from the pen of a clinical worker, a praiseworthy account is offered of much of the recent work—both clinical and experimental—bearing on the causes and treatment of various degrees of glycosuria. It is, however, more particularly with the part of the book bearing on the purely scientific aspect of the problem that the present review is concerned.

In the first chapter the general chemical properties and relationships of the various carbohydrates are sufficiently explained for most purposes, greater details being offered in the form of an appendix. Too little attention is, however, given to the condition of carbohydrates in the blood, an omission which, in view of the large amount of recent important investigation, is rather disappointing. The statement on page 17 that the blood is of definite alkalinity is hardly in keeping with modern teaching.

The two chapters which follow are devoted to a description of the different processes used in the detection and estimation of the various sugars in urine. There is much unnecessary detail regarding methods that are practically obsolete and the reader is not sufficiently informed as to which of those described the author, from personal experience, would recommend him to employ. The use of charcoal for the clarification of turbid urine (for polariscope examination) is condemned, because of adsorption of some of the sugar (p. 98), but no mention is made of the prevention of this adsorption when acetone or acetic acid is present in the solution. The method described for the estimation of the sugar in blood is obsolete.

In the chapter entitled "Experimental Glycosuria" a clear and well-arranged account of the results of some of the more recent laboratory investigations on this subject is given. The author, probably because he has not personally participated in such types of investigation, does not attempt to offer much criticism of the work; as a rule, he merely restates the views of others, thus leaving the reader to draw his own conclusions. In several parts of this chapter, however, the subject matter is not brought up to date as, for instance, in connection with the supposed antagonistic action of the pancreatic and adrenal glands in the control of the amount of sugar in the blood. The paragraphs on the relationship of the thyroid and parathyroid glands to carbohydrate metabolism and "on a theory of the co-relation of the ductless glands" are one-sided and highly speculative.

The remaining chapters are devoted to a study of the various degrees of transient and persistent glycosuria met with in man. This is distinctly the most important half of the book, for, while giving a well-arranged review of the work of other investigators, important personal experiences of the author himself are presented. Although it would be out of place for us to review at all extensively, this clinical portion of the book, there are yet one or two criticisms which may be appropriate.

The account of the behavior of the creatin-creatinin excretion in diabetes is not brought up to date; there is practically no mention of the recent observations on the changes in the amount of the blood-sugar in diabetes; the so-called pancreatic reaction in the urine is not described in sufficient detail to make it possible for one unfamiliar with the author's previous writings to apply it properly, or even to understand upon what principles the reaction depends. The author lays great stress on the existence of pancreatic disease in most cases of diabetes, but beyond giving the case histories of a few diabetics in which pancreatic lesions may have existed, he adds no further evidence in support of such a conclusion.

The chapters on metabolism and treatment are distinctly successful and should be most useful to those called upon to treat this disease.

Taking the book as a whole it is not too much to say that it ranks with the best that have been written in this field. It is conservative and does not, as many of its fore-runners do, extol any "specific" treatment which can be applied in all cases. On the contrary, it is frequently insisted upon that every case of diabetes must be considered as a problem in itself, and that the treatment must be adjusted so as to meet the peculiar conditions which it exhibits.

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SPECIAL ARTICLES

THE PREVALENCE OF *BACILLUS RADICICOLA* IN SOIL

THE fact that soils from fields where leguminous plants bear nodules upon their roots may be used as a means of introducing this type of nitrogen-fixing bacteria into barren soil shows clearly that the different varieties of *Bacillus radicum*, the organism which causes the root nodules, find a congenial habitat in many kinds of soil. Aside from its manifestations in the symbiotic relationship with leguminous roots, however, practically nothing is known regarding the distribution